

Applicants: Short et al.
Application No.: 10/509,431
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AMENDMENTS TO THE CLAIMS:

The following list of claims will replace all prior versions, and listings, of claims. Please amend the claims as follows:

1.-40. (Canceled)

41. (Currently amended) A method for preparing a plasma polymerized surface on a substrate comprising:

depositing a plasma polymer on the substrate using at least one organic compound monomer as a source to produce a plasma which is emitted from a plasma source and from which the plasma polymer is deposited; and

moving at least one of:

- (i) the monomer plasma source, and
- (ii) the substrate,

relative to one another during plasma deposition such that at least part of the substrate has a plasma polymer deposit that is non-uniform,

wherein the substrate is separated from the monomer plasma source by a mask plate having at least one aperture that defines features of the deposited plasma polymer surface, the mask plate being spaced from the substrate.

42. (Currently amended) The method of claim 41 wherein the substrate is moved relative to the monomer plasma source.

43. (Currently amended) The method of claim 41 wherein the monomer plasma source is moved relative to the substrate.

44. (Previously presented) The method of claim 41 wherein the plasma polymer deposit is heterogeneous physically.

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45. (Previously presented) The method of claim 41 wherein the plasma comprises at least two organic compound monomers.

46. (Previously presented) The method of claim 45 wherein the plasma polymer deposit is heterogeneous chemically.

47. (Previously presented) The method of claim 41 wherein the organic compound monomer is an alcohol.

48. (Previously presented) The method of claim 41 wherein the organic compound monomer is an acid.

49. (Previously presented) The method of claim 41 wherein the organic compound monomer is an amine.

50. (Previously presented) The method of claim 41 wherein the organic compound monomer is a hydrocarbon.

51. (Previously presented) The method of claim 41 wherein the organic compound monomer is a fluorocarbon.

52. (Previously presented) The method of claim 41 wherein the organic compound monomer is tetraethyleneglycol monoallyl ether.

53. (Previously presented) The method of claim 41 wherein the organic compound monomer is a siloxane.

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54. (Previously presented) The method of claim 41 wherein the organic compound monomer is selected from the group consisting of allyl alcohol, acrylic acid, octa-1,7,-diene, allyl amine, perfluorohexane, tetraethyleneglycol monoallyl ether or hexamethyldisiloxane (HMDSO).

55. (Previously presented) The method of claim 54 wherein the plasma polymer deposit is produced from a single organic compound monomer.

56. (Previously presented) The method of claim 41 wherein the organic compound monomer consists essentially of an ethylenically unsaturated organic compound.

57. (Previously presented) The method of claim 56 wherein the organic compound monomer consists of tetraethyleneglycol monoallyl ether.

58. (Previously presented) The method of claim 56 wherein the organic compound monomer is an alkene, a carboxylic acid, an alcohol or an amine.

59. (Previously presented) The method of claim 41 wherein the plasma polymer deposit consists of a mixture of two or more ethylenically unsaturated organic compounds.

60. (Currently amended) The method of claim 59 wherein the mixture of two or more ethylenically unsaturated organic compounds ~~organic compound monomer~~ is selected form the group consisting of an alkene, a carboxylic acid, an alcohol, or an amine.

61. (Previously presented) The method of claim 41 wherein the organic compound monomer consists essentially of a saturated organic compound.

62. (Previously presented) The method of claim 41 wherein the organic compound monomer consists essentially of an aromatic compound or a heterocyclic compound.

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63. (Previously presented) The method of claim 41 wherein the organic compound monomer is polymerisable and has a vapor pressure of at least 6.6×10^{-2} mbar at room temperature.

64. (Previously presented) The method of claim 44 wherein the plasma polymer deposit is a co-polymer produced from at least two organic compound monomers.

65. (Previously presented) The method of claim 64 wherein the co-polymer comprises at least one organic compound monomer that comprises at least one hydrocarbon.

66. (Previously presented) The method of claim 65 wherein at least one hydrocarbon is an alkene.

67. (Previously presented) The method of claim 41 wherein the plasma polymer deposit is deposited on said substrate in spatially separated dots.

68. (Previously presented) The method of claim 41 wherein the plasma polymer deposit is deposited on said substrate in tracks or lines.

69. (Previously presented) The method of claim 41 wherein the chemical composition of the plasma polymer deposit is heterogenous along its length.

70. (Previously presented) The method of claim 41 wherein the chemical composition of the plasma polymer deposit is heterogenous in its height.

71. (Previously presented) The method of Claim 69 wherein the plasma polymer deposit is deposited on said substrate in spatially separated dots.

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72. (Previously presented) The method of Claim 70 wherein the plasma polymer deposit is deposited on said substrate in spatially separated dots.

73. (Previously presented) The method of Claim 69 wherein the plasma polymer deposit is deposited on said substrate in tracks or lines.

74. (Previously presented) The method of Claim 70 wherein the plasma polymer deposit is deposited on said substrate in tracks or lines.

75. (Previously presented) The method of claim 41 wherein the substrate is selected from the group consisting of glass, plastics, nitrocellulose, nylon, metal, ceramics, quartz, metal films and silicon wafer.

76. (Previously presented) The method of claim 75 wherein the substrate is a plastic selected from the group consisting of polyethylene terephthalate, polyethylene, polyvinyl chloride, polypropylene and polystyrene.